royal tag sa®
ANIMAL DIVISION

I-Read

USER MANUAL

Firmware version: 17 - LOTS

CE conformity declaration

The manufacturer declares that the I-Read scanner complies with the requirements prescribed by the following European regulations: 73/23/EEC, 93/68/EEC and 89/336/EEC.
In particular, the following standards were used to verify the compliance described in the preceding point:
-ETSI EN 300 330-2 V1.3.1 (04/2006)
-ETSI EN 300 330-1 V1.5.1 (04/2006)
-EN 301 489-1 V1.8.1 (2008)
-EN 301 489-3 V1.4.1 (2002)
-EN60950-1(2006 +A11: 2009)

Industry Canada
IC: 9508A-2011001

IC conformity declaration

This ISM device complies with IC (industry Canada) specification ICES-001, RSS-210 Issue 8, RSS-GEN Issue 3, RSS-102 Issue 4

RoHS

RoHS conformity declaration

We hereby declare that this product is manufactured as per the requirements of Directive 2002/95 CE (RoHS)

I-Read
FCC ID:Y72201001

FCC conformity declaration

This device complies with what is indicated in Part 15 of the FCC regulation "Low Power Transmitter Below 1705 kHz". Usage is subject to the following two conditions:
1) This device must not cause harmful interference
2) This device must accept any interference received, including that which could produce undesired usage

WARNING

Do not make any change or modification to the device unless expressly specified in the manual.
If it is necessary to make these changes or modifications, it could be necessary to interrupt the use of the device.

To request a copy of the certificate, please contact: ***contact@royal-tag.com***

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1. Introduction

I-READ is a portable reader for the scanning of RFID tags compliant with the **ISO standards 11784 and 11785**.
I-Read supports the **FDX-A**, **FDX-B** and **HDX** protocols and is powered by a 9V battery. The information relative to the ID of the scanned tag is available directly on a color display and can be downloaded to a PC through a USB cable. It is also possible to associate some aliases to the different tags scanned. This version has been designed to manage different animals' lots associating a LOT name/number to a group of scanned tags.It's also possibile to associate some aliases to the different scanned tags.

2. Quick use guide

1. Remove from Box
Reader - Cover - Battery

2. Insert the battery paying attention to polarity.

3. Make sure that the battery is placed in the right position, and close the battery cover.

4. To turn on/off the reader, press the ON/OFF button.

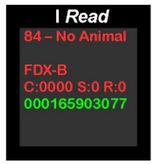
5. "Firmware - Bootloader"
On the screen appears for 5 second the version of the software and the Bootloader.

6. Main screen, that can be customised with the distributor's logo. The current lot number is showed in the bottom centre.
The logo of the blue floppy disk is specific to the version of the firmware with LOTS and ALIASES and indicates the usage state of the memory reserved for the LOTS and ALIASES insertion.

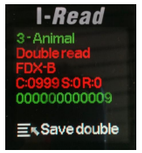
7. To scan the transponder. Press the scanning button (see page 4) depicted to the side. Two red LED flash alternatively.
When the transponder is read the buzzer emits a warning sound. The transponder is associated to the lot which has been selected as shown later

On the screen it appears:

- Category (Animal), beside Animal/Not animal, appears a number (if Selected "***Switch ON REC***" function) indicating the positioning into the memory of ID codes
- Type of transponders (HDX/FDX-B found)
- Country (C)
- Species (S)
- Re-tagging counter (R)
- Code



If you read a transponder not usable for animals, it appears on the screen in red : "***This is not an animal tag***"



If no Transponder was read, in "Full Power" mode after 14 sec. it appears "Tag not found". If you read a tag already detected before,a Double read message will be displayed in red; if the double tag has already been stored in the LOT you're using, it won't be saved while if it has been stored in a different LOT there will be the possibility to save it by clicking the selection button

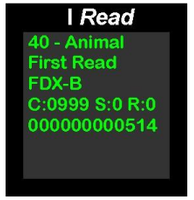
8. By pressing the selection button , you will have access to the setting menu.
Please refer to section 3, Menu Functions, for a complete description of the meaning of the various preset functions of the scanner, which are:

- choice of LOT
- LOTS report
- memory report
- erase LOTS
- erase memory
- energy save/full power

9. Battery charge level indicator.

10. Keybord

11. Auto shutdown is set to 60 seconds.

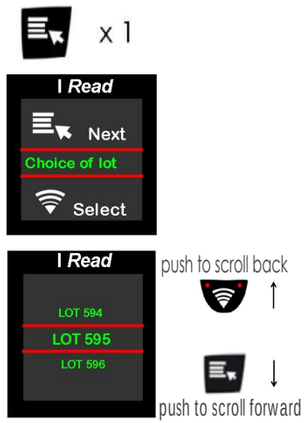


Since the switching on or after performing a reading after 20 sec. from read, the code disappears and returns to the screen with the logo. After 40 seconds, the reader turns off automatically.

12. In the "Energy Save", the auto power off is set to 20 sec.

3. Menu functions

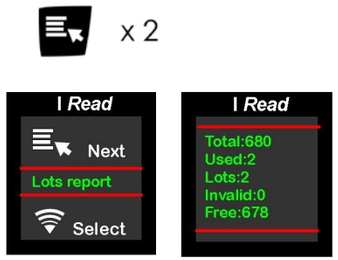
3.1 Choice of LOT



The "Choice of lot" function allows to display the list of the available LOTS and to choose a lot which will be displayed on the main screen

By pressing the Selection button once, the function "Choice of lot" will be displayed. By pressing the scanning key you will be able to see the list of the available LOTS and to move forward or back in the list until the desired lot is selected. After this, it's possible to return to the main window by pressing the ON/OFF button or waiting 10 seconds. Holding the selection button in the list will cause the list indicator to jump forward by 10 items per time after the first 15 displayed one by one; the same action will be performed backwards holding the scanning key You can choose either to make use of default LOTS (999 available) or custom LOTS (see 6.2 about custom LOTS insertion).

3.2 Lots report



The "Lots report" function allows the visualization of the lots memory usage.

By pressing the Selection button twice, the function "Lots report" will be displayed. By pressing the scanning key you will be able to see the details about the total number of custom LOTS and aliases used, total available LOTS, free LOTS and invalid ones.
The maximum number of LOTS which can be stored is 680 (see:TOTAL). The voice USED reports how many aliases and custom LOTS you've currently associated. LOTS tells how many custom lots have been defined (see par.6 for Custom LOTS). Finally in INVALID will be reported the not valid LOTS and ALIASES.

3.3 Memory report

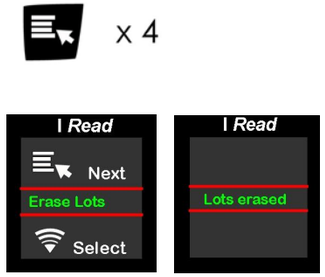
The "Memory report" function allows the display of how much memory is still available for storing of the identification codes of the animals.

The "Memory report" function will be displayed after pressing the menu selection button three times.

By pressing the scan button, the memory status will be displayed, and in particular the number of codes scanned, those used, and those still available.

The image of what the reader displays in this case is reported to the side.

3.4 Erase lots



The "**Erase lots**" function allows to **delete all the custom lots'names**

The "Erase lots" function will be displayed after pressing the menu selection button four times.
By pressing the scan button, the names of all the custom LOTS will be erased. This is not erasing the defaul lots neither the identification codes of the tags previously associated to the custom LOTS.
Thus if you haven't assigned any custom LOTS, such a function has no effects.
As confirmation, the Done flag and the "Lots erased" warn will appear

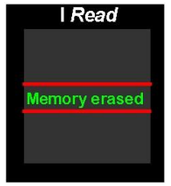
3.5 Erase memory

x 5

The "Erase memory" function deletes all of the codes saved previously

By pressing the Selection button five times, the function "Erase memory" will be displayed.

By pressing the reading button, data will be erased.



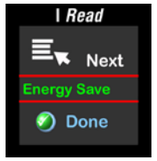
As confirmation, the Done flag and the Memory erased warn will appear

Attention: you must be careful to handle this option because it will erase all data stored (but not the custom LOTS'names)

3.6 Energy save/Full power

x 6

The "Full Power" function leads to high-quality display using the colour display screen in the background.
The "Energy Save" function causes passage to the monochromatic display with a notable battery saving.



By pressing the Selection button six times, the function "Energy Save" will be displayed.

By pressing the reading button, the change will be applied

As confirmation an image and the word "Done" appears.

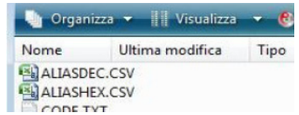
The screen switches to monochrome mode.

To exit the function "Energy Save", repeat the procedure.

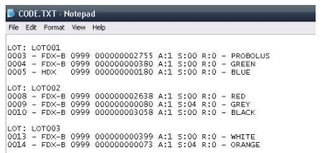
By pressing the Selection button six times, the function "Full Power" will be displayed.

By pressing the read button, the change will be applied

4. Download the Mass Storage mode data



By connecting the USB cable to the PC, a window with the file CODE.txt containing the list of the scanned codes opens automatically.
The meaning of the other files present (ALIASDEC.CSV and ALIASHEX.CSV) is specified in section 5.



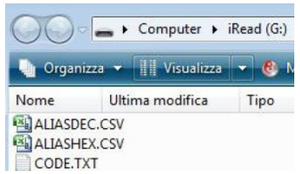
The text format allows you to easily export the codes for storing in the database.

The information available in sequence is:
- LOT number or custom lot name
- Registration number in the internal memory of the scanner
- Type of FDX-A,FDX-B,HDX tag
- Country code (4 digits)
- Identification code
- Type of tag indicated with the letter A (A=1 indicates animal)
- Animal species, indicated with the letter S
- Retagging
- Associated alias

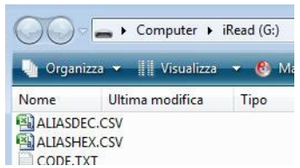
5. Insertion of the aliases

To be able to insert the aliases it is enough to create a text file (.txt file) on your PC that has within it a syntax as reported in section 5.1.
Once this file has been created, the scanner must be connected to the PC through the USB cable and the text file copied within the mass memory of the scanner, where the files **ALIASDEC.CSV** and **ALIASHEX.CSV** are present. The success or not of this operation is indicated by a message that appears directly on the scanner's display.

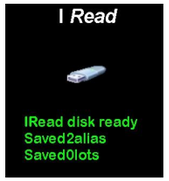
The procedure described so far is reported step by step below.
We assume the creation of a text file with the associations for the aliases and the saving of this file with the name **alias_insert.txt**.



We then connect the scanner through the USB cable to the PC.
At this point a window containing, in addition to the file with the list of the scanned identifications, also another 2 files, ALIASDEC.CSV and ALIASHEX.CSV, which contain, respectively, the list of the aliases relative to the decimal and hexadecimal identifications already associated in the device's memory (they will be empty in the case in which no associations were made previously) opens automatically.



A this point it is possible to copy the file created previously (alias_insert.txt) within this folder.
In this way we have created the ALIAS-identification association within the scanner which will then be automatically reported by the scanner in the .CSV files present within it.



A message relative to the success or not of the operation will then appear on the display.

The following table illustrates in detail the meaning of the various messages that can appear on the scanner's display.

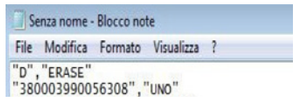
Saved45alias	Attests to the success of the operation of the assignment of the aliases and specifies the number of aliases correctly assigned(45 alias in the example image).
CSV error (97)	Indicates that there is a syntax error to the row 97
Alias Full	Indicates that the memory available for the aliases is full
Disk Error	here has been an error during the saving of the aliases on the scanner's microprocessor

5.1 Alias Syntax

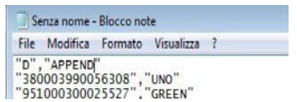
The syntax to follow within the text file requires that the first row reports
- Information on the type of ID, decimal or hexadecimal, to which to assign the aliases specified in the subsequent rows;
- indications on the deletion of the aliases previously inserted (ERASE command) or on the desire to insert new aliases, not deleting those previously inserted (APPEND command).

"D","ERASE"	The list that follows in the text file is composed of decimal characters. The ERASE command deletes the aliases already present n the device's memory.
"D","APPEND"	The list that follows in the text file is composed of decimal characters. The APPEND command does not delete the aliases already present in the memory and allows the addition of new ones at the end of the previous ones.
"H","ERASE"	The list that follows in the text file is composed of hexadecimal characters. The ERASE command deletes the aliases already present in the device's memory.
"H","APPEND"	The list that follows in the text file is composed of hexadecimal characters. The APPEND command does not delete the aliases already present in the memory and allows the addition of new ones at the end of the previous ones.

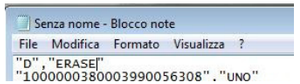
The rows folowing the first one contain the effective association between the ID of the tag and the aliases. It is possible to insert the ID in two ways; in a format of 15 characters (3 for the identification of the country code and 12 for the unique ID of the tag), or a sequence of 22 characters corresponding to the 64 bits required by the ISO standard 11784. The examples that follow specify the various possibilities for the assignment of the aliases.



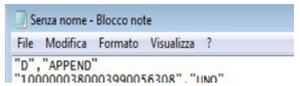
Assignment of 2 aliases by sending the decimal ID (15 characters) and country code, indicating ERASE mode.



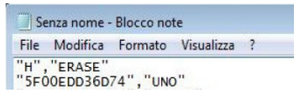
Assignment of 2 aliases by sending the decimal ID (15 characters) and country code, indicating APPEND mode.



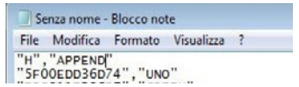
Assignment of 2 aliases by sending all 64 decimal bits to the device, indicating ERASE mode.



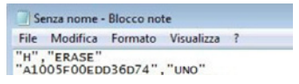
Assignment of 2 aliases by sending all 64 decimal bits to the device, indicating APPEND mode.



Assignment of 2 aliases by sending the hexadecimal ID (15 characters) and country code, indicating ERASE mode.

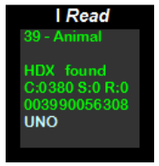


Assignment of 2 aliases by sending the hexadecimal ID (15 characters) and country code, indicating APPEND mode.



Assignment of 2 aliases by sending all 64 hexadecimal bits to the device, indicating ERASE mode.

Assignment of 2 aliases by sending all 64 hexadecimal bits to the device, indicating APPEND mode.



When a tag with an associated alias is scanned, an image as indicated to the side will appear on the display.

In the case in which an alias that is already present in the memory is returned, we will have:
- If the alias associated to the tags is the same in the device, no operation is performed
- If there is already an association of the tag but the name changes, the device invalidates the previous alias and saves again.

The alias can contain spaces and the following characters:
"0123456789ABCDEFGHILMNOPQRSTUVWXYZ"
In the case in which the alias assigned exceeds the number of characters that can be visualized on a row of the display, it will automatically be shortened.

6. Insertion of the custom LOTS

To be able to insert the custom lots it is enough to create a text file (.txt file) on your PC that has within it a syntax as reported in section 6.1.

Once this file has been created, the scanner must be connected to the PC through the USB cable and the text file copied within the mass memory of the scanner, where the files **ALIASDEC.CSV** and **ALIASHEX.CSV** are already present. The success or not of this operation is indicated by a message that appears directly on the scanner's display (see section 6.2).

The procedure described so far is reported step by step below.

6.1 LOTS Syntax

The syntax to follow within the text file requires that the first row reports:

- indications on the deletion of the LOTS previously inserted (ERASE command) or on the desire to insert new LOTS not deleting those previously inserted (APPEND command). The two possible commands are:

"H","ERASE"	The list that follows in the text file is composed of hexadecimal characters. The ERASE command deletes the LOTS already present in the device's memory.
"H","APPEND"	The list that follows in the text file is composed of hexadecimal characters. The APPEND command does not delete the LOTS already present in the memory and allows the addition of new ones at the end of the previous ones.

The rows following the first one must instead respect the following syntax in order to name a custom LOT:

"FFF000000000","LOT Name"	The hexadecimal string (3 "F" and 12 "0") is an unique command to tell a new custom LOT will be created with a certain name.

The custom LOTS names may contain spaces and the following characters:
"0123456789ABCDEFGHILMNOPQRSTUVWXYZ"

The resultant text file will appear like in the example below:

```
File  Edit  Format  View  Help
"H","APPEND"
"FFF000000000","DAVIDSONS"
"FFF000000000","SLAUTHER"
"FFF000000000","MILK"
"FFF000000000","VACCINE"
"FFF000000000","LAMB"
"FFF000000000","NEWBIRTH"
```

where 3 custom LOTS have been created with the "APPEND" option.

6.2 Custom LOTS uploading

After the text file has been created and saved with a convenient name, it will be enough to upload the file in the I-Read mass memory after having connected via USB the device to the PC.

The success of the operation will be confirmed through a message on the screen like in the example on the left. Going to "Choice of lot" menu voice (see 3.1.), it will be possible to select one among the custom lots just charged

The following table illustrates in detail the significance of the various messages that can appear on the scanner's display.

MESSAGE	MEANING
Saved 3 lots	Attests to the success of the operation of the assignment of the lots and specifies the number of lots correctly assigned(3 lots in the example image).
CSV error (97)	Indicates that there is a syntax error to the row 97
Lots Full	Indicates that the memory available for the lots is full
Disk Error	There has been an error during the saving of the lots on the scanner's microprocessor

6.3 Troubleshooting

Mistakes can arise in the custom lots assignment.

If the syntax "H","ERASE" or "H","APPEND" is not respected, the generated text file will not be uploaded to the I-Read mass memory without an error message being displayed.

If the syntax "FFF000000000" is not respected, a CSV error (X) error message will be displayed if the relative command is at row X.

If the LOT name is longer than 16 characters, the LOT name will be cut at the first 16 characters

6.4 LOTS data downloading

After having chosen a custom LOT when a tag will be read, it will be automatically associated to that LOT. Thus, when you'll download the code.txt file from the memory mass of the device (see 4), you will clearly see the association between the LOT and the tag identification number.
To return to the previous configuration (with default lots and not custom ones), the command "Erase Lots" must be given (see 3.4)

```
CODE.TXT - Notepad
File  Edit  Format  View  Help

LOT: DAVIDSON
0003 - FDX-B 0999 000000002755 A:1 S:00 R:0
0004 - FDX-B 0999 000000000380 A:1 S:00 R:0
0005 - HDX   0999 000000000180 A:1 S:00 R:0

LOT: SLAUTHER
0008 - FDX-B 0999 000000002638 A:1 S:00 R:0
0009 - FDX-B 0999 000000000080 A:1 S:04 R:0
0010 - FDX-B 0999 000000003058 A:1 S:00 R:0

LOT: MILK
0013 - FDX-B 0999 000000000399 A:1 S:00 R:0
0014 - FDX-B 0999 000000000073 A:1 S:04 R:0
```

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